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CERAMICS

CERAMIC CLAYS IN THE UNITED STATES.

THOSE who go West frequently hear farmers complain of an alkali patch "where nothing will grow." Some have been comforted by the scientific assurance that this is the most valuable part of the land. "These patches," so terrible to the farmer of the present, are richer than the mines of Golconda to the potter of the future. Light the record of the United States Survey by the Hayden expedition with the knowledge of a chemist, and the pages glow like the stories of Arabian Nights—with pictures of unused wealth, of buried treasure. There are mountains of white sand, fit to make the finest of glass; volcano-like reservoirs of half liquid plastic clay; beds of kaolin purer than that of China. Huge hillsides store the very kind of material with which Staffordshire gave a name to pottery, and there are acres and acres fit to form furnaces large enough to fire porcelain for the use of all the world. You listen, and if the scientist will still turn the pages for you, you hear of "areas of mineral ore" locking up in their silent fastnesses imperishable colors, hues which will only show their brilliancy after having passed through fire.

If you wish to feel the force of the contrast between the ceramic resources of the old world and the undeveloped wealth of the new, you must know how the European potters (workers with head and hand, uniting often in the one man the inventor, the artist, and the manufacturer), searched for a substitute for the famous white "body," that precious, unknown material that made china and porcelain synonymous terms. The Royal Manufactury at Sèvres secured scientific men to experiment and chemists to apply the result of such investigation to ceramics, and paid artists like princes to design, and to train artisans, until a piece of Sèvres was a fit present for an emperor, and France reigned queen of taste in Europe. Until 1791 the ingredients used were in the following proportion:

Nitre	21.7
Common Salt	7.2
Alicent Soda	3.7
Roman Alum	3.7
Calcined Gypsum	3.7
Quartz Sand from Fontainebleau	60.
	100.0

This mixture was heated in an oven till it became a half glassy mass and then it was ground to powder, six parts of which were mixed with one of chalk, and one of calcareous clay from Argenteuil. Later the Sèvres manufactory used the kaolin of St. Yrieux near Limoges, which, according to Berthier's analysis contains:

Silica	46.8
Alumina	37.3
Potash	2.5

There are wealthy acres in the United States where no wheat will grow, but where the soil will furnish the principal ingredients for plastic clay, namely, alumina and silica, while the detested "alkali patches" are rich in the potash, soda, lime, and magnesia such as for years the Sèvres manufactory has added—singly or combined—to the silica and alumina.

Kaolin is decomposed feldspar, so called to show its identity with the secret ceramic treasure of China, withheld from the knowledge of the world till the French government sent its missionaries instructions to bring from the heart of the country pieces of the material. Pure feldspar, after the finest grinding, is stored in China, often for thirty years, to thoroughly decompose. This is kept for the finest porcelain. In the United States lie beds of kaolin, that is, feldspar so affected by air and water that it is ready for art industrial manufacture.

Chinese porcelain is made of kaolin (decomposed feldspar) and petunse (feldspar pure or mixed with quartz), and owes part of its superiority to the thorough grinding and washing of all its parts. Colorado has quantities of feldspar.

Georgia has porcelain clay, potter's clay, and pure brick clay.

Nebraska has an almost inexhaustible supply of potter's clay.

Arkansas has a large bed of white clay in Pike County, superior, according to chemical tests, to that used in the Staffordshire potteries in England

Missouri abounds in brick and potter's clays, and "paying quantities of kaolin," besides, yellow ochre and mineral paint in generous proportion.

Alabama has a quantity of different colored clays almost ready for the potter's use at Valhermosa. This little picturesque place near Huntsville became known as a health oasis during the yellow fever, but thus far only a few artists have looked upon it as a site for an American Etruria.

Minnesota has lime, salt, white sand "as pure as that of Missouri" for glass making; Tripoli, such as was used by English and Dutch potters of old, in luxuriant quantities, and brick, potter's, and porcelain clays.

On the way to the National Yellowstone Park from Montana, white, yellow, blue, dark gray and black clays are found, and there is a pool about 40 by 60 feet of white and yellow clay, blending beautifully into red. This is known as the "Paint Pot," and it silently points out the promised land for the potter of the future to those who remember that Wedgwood produced some most effective ware by combining different colored clays. The "Paint Pot" clays are moist and pleasantly smooth to the touch. Craters of dry cracked mud protect the tinted earths.

The work done by the potters and artists of Cincinnati with the colored clays of Ohio is too well known to require detailed mention here. Besides these pioneers there are, in other States of the Union, three notable artists at work developing in different ways the ceramic resources of this country. First among these is Carl Gutherz whose experiments in teaching the decoration of pottery to the St. Louis school teachers induced the Washington University of that city to organize an art department. This artist, of whom the South-west is justly proud, never loses an opportunity of pointing out plastic clay to the hopeless owner of non-producing land. "Give some acres," he will say, "to a chemist, a potter, an artist; induce artisans to live here; found a colony of ceramic workers; your land covers fortunes, but industrial art can alone develop it." Gutherz suggests, but when will the suggestion be acted upon?

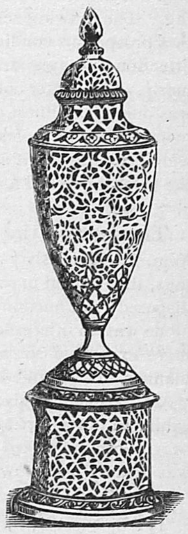
The second is Matt Morgan, who in 1878 had begun to interest capitalists in the question, "Will ceramic art pay in this country?" He caused experiments to be made as to the relative purity of American and foreign kaolin. He showed both made into cakes ready for use, and that "ours is the whitest" could be seen by any schoolboy. In his Philadelphia studio stood an old-fashioned fireplace simply to show his masterly painting on china and the fruit of his kiln.

The third is John Bennett, whose genius made the fame of the Doulton faïence so great that the French deputation (sent by workingmen to our Centennial Exhibition) reported to the ceramic artists of France that they were equalled, almost surpassed, by this art director of Lambeth, England. Mr. Bennett came to New York city with the intention of opening and conducting a ceramic school, where art students might learn to paint in porcelain in never dying colors, paying for their instruction by art industrial work, but this has not yet been found practicable. Among the men and women who exhaust adjectives in their admiration of Bennett faïence there are few who understand that in John Bennett we have united in a teacher inventive genius, artistic facility, and years of practical experience. But will the United States wait while a few artists slowly and separately educate public opinion? Will the ceramic wealth of this country lie another century undeveloped for the want of a public leader as highly, widely cultured as the Beaconsfield who wrote that "man is made to create, from the poet to the potter?"

ALICE DONLEVY.

ROYAL WORCESTER PORCELAIN WARE.

IN a general article on artistic decorative pottery in the first number of the present volume, we spoke of the admirable ware turned out from the Royal Worcester Porcelain Works, which more than sustains the old reputation of this famous pottery. The illustrations we gave then we now supplement by two of a different character. An example of the beautiful ivory reticulated porcelain referred to in that article is shown in the margin. The original of this piece and other pieces of Royal Worcester, admirable for their purity of color, translucence, closeness of texture and richness of appearance, may be seen at the warerooms of Davis Collamore & Co. But our special purpose in recurring to the subject is to introduce the superb exhibition piece, of which Professor Camille Piton has given us an excellent drawing. It is one of the two vases exhibited in the Paris Exposition of 1878, under the name of "Keramos." The professor sends the following description:


RETICULATED WORCESTER PORCELAIN.

The vases are thirty inches in height; the body color is ivory tint relieved by gilding. The decoration consists of the heads of famous artists on the handles—on this one they are Bernard Palissy and Lucca della Robbia; on the other Wedgwood and Flaxman. In the panels on each side groups are seen in full relief, illustrating the processes of throwing, modelling, painting and firing. These vases may be classed among the most remarkable achievements of modern ceramic art. They were purchased by Caldwell & Co., and now enrich the collection of a gentleman of Philadelphia, who paid about $5000 for them. That amateurs in china painting may have some idea of the labor involved in this kind of work, I will give the names of the different artists who contributed to produce these two pieces:

Paste work	W. Faringdom.
Modeller and designer	J. Hadley.
Paste work and gilding	G. Radford.
Firing in biscuit	E. Blake.
Gloss-oven firing	T. Goodwin.
Firing in enamel	J. Goodwin.
Painting and decorating	J. Callowhill.
do	T. Callowhill.
do	J. Davis.
do	T. Stephenson.
do	W. Jones.

So we see that eleven artists were employed in the confection of these vases. If we want to complete the list of the gentlemen of the Worcester Royal Manufactory, we will add the names of E. Bejot and James Callowhill for Japanese work, E. Robert Evans as manager of the manipulations, and the director, Mr. Binns.

CAMILLE PITON.

IN the ceramic art, a substance which makes other substances melt more easily is called a flux, such as borax, minium, litharge, flake white, white of lead, potassium, soda, wood ashes, glasses, crystals, and several metallic oxides, all of which are fluxes. In order to use the metallic oxides, which are the base of the vitrifiable colors, they must be mixed with a flux. Bismuth is the flux for gold.

THE ALI BABA VASE.

THE largest vase ever made in this country has lately been successfully produced at Cincinnati, and christened the "Ali Baba." "In August last, says The Commercial, "Miss Louise McLaughlin formed the design of having a vase made for exhibition at the Cincinnati Expostion that should excel in size any piece of ceramic work yet produced in this country. The moulds were prepared, and the vase in the wet clay measured forty-four inches in height and nineteen inches in diameter. It was soon discovered that such an undertaking could not be brought to a successful termination in the few weeks that preceded the opening of the Exposition. The difficulties in the way were such that no one unfamiliar with the practical working of a pottery could form an adequate notion of the dangers and accidents that were likely to interfere. When a certain size is obtained in the manufacture of pieces of pottery, the addition of an inch, or even a fraction of an inch in the diameter, adds a hazard that is many times greater than the proportionate increase in size.

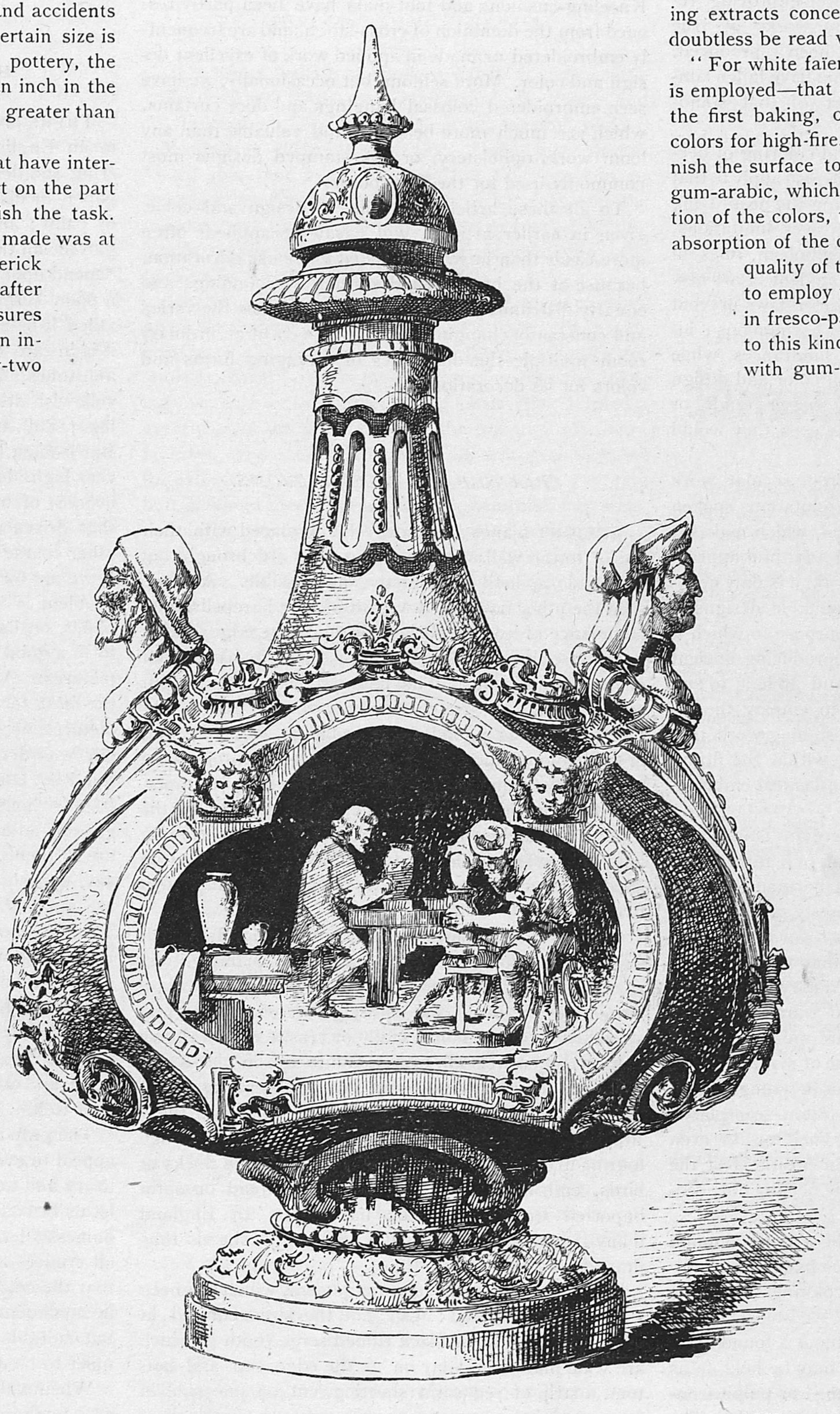
It is sufficient to say that the months that have intervened have found a never-despairing effort on the part of the artist and the potters to accomplish the task. The fifth vase in the series of the attempts made was at last successfully fired at the works of Frederick Dallas. In its complete state the vase, after the shrinkage of the clay in the firing, measures thirty-seven inches in height and seventeen inches in diameter. Its capacity is twenty-two gallons, nearly double the capacity of any piece of glazed work before manufactured in the United States. The walls are, however, of no greater thickness than the sides of a one-gallon jug. The decoration placed on the vase by Miss McLaughlin is under the glaze, and shows the dark hibiscus on a ground of sage-green, the colors being intended to harmonize with the prevailing tones in Eastlake paper-hangings. Praise must be awarded to Joseph Bailey, who superintended the making and firing of this triumph of Cincinnati ceramics. A glance at its size, its perfect glaze, and the remembrance that it passed through two firings at a temperature of from sixteen to eighteen thousand degrees, will show that it could only be successful under the directions of one thoroughly acquainted with the potter's art. The handling of the vase in all its stages, and the dipping of such a large piece in the glaze, required the greatest skill and care."

A RARE BEQUEST.

THE Henderson collection of choice Asiatic and European majolica, lately bequeathed to the British Museum, is described in The Academy by Cosmo Monkhouse, who says these fragile beauties from Persia, Damascus, Rhodes, Italy, Spain, and Sicily seem almost out of place there, like butterflies in a lecture-room; it is difficult to believe that some of them have existed for six or seven centuries in all their pearly freshness. The specimens are all choice and perfect, and those of Persian work have been chosen mainly from the beautiful tiles which cover the mosques and palaces of the thirteenth and fourteenth centuries, iridescent as a shell, and full of rich color as the shoaling of tropical seas. Walls so covered must go far to realize the fabled palaces of pearl and precious stones; and, what is more to the present purpose, these tiles are purely Persian or Arabian in decoration, without that admixture of Chinese influence which is so common in later Persian pottery. The variety of color and decoration in these tiles is well represented. The star tiles, with brown lustre and border of Arabic characters; the rare light green and turquoise blue; the beautiful, small pearly tiles, with a phœnix or animal in the centre; the upright tiles of the time of Shah Abbas, with raised figures of horsemen and horsewomen, or beautifully modelled flowers; the deep cobalt tiles, with arabesques of gold and white, reminding one of Limoges enamel; and the large cornice tiles, with their raised Arabic inscriptions, are all here. Here also are some good specimens of lustred bowls and cups, and of jars and bottles of various shapes.

More generally attractive for their simple colors and bold decoration of conventional flowers and arabesques are the pieces of Rhodian and Damascus ware; these remarkable for their chord of brilliant hues—purple-blue, ferruginous red, and vivid apple-green—those for their softer harmonies of blue and green and lilac. Looking at these well-defined specimens, it would seem an easier task than it really is to decide whether a stray piece should be assigned to Persia, Rhodes, or Damascus. In this collection there is a fragment of Persian pottery which has the Rhodian green. At South Kensington there is a long bottle assigned to Persia which would have infallibly found its way into the Damascus case if it had formed part of this collection; and the same flowers and peculiar palms which form such characteristic features in Rhodian ware, and the method of laying on the color so thickly that the flowers stand out in slight relief, are found also in pieces of unmistakably Persian origin. A few choice bits of the pretty, mosaic-like ware of Anatolia are also worth notice.

If it were only as a lesson in lustre this collection would be singularly interesting, for here it can be traced in its progress and decay through many centuries, from its birth in Persia, through the Arabs and Moors to Spain, Sicily, the Balearic Islands, and Italy. We can see it reflecting the iridescence of dawn at Meshed, gleaming like pure gold of Valencia and Malaga, glowing in company with purple in Sicily, sometimes flashing with ruby and emerald from the ovens of Gubbio, sometimes degraded to copper, as in the later works of Spain.



WORCESTER PORCELAIN VASE, "KERAMOS," EXHIBITED AT PARIS IN 1878.

FAÏENCE DECORATION.

THE third part of Professor Camille Piton's excellent treatise, on "China Painting in America," is devoted chiefly to instructions for underglaze work. The following extracts concerning the decoration of faïence will doubtless be read with interest:

"For white faïence in painting underglaze, 'biscuit' is employed—that is to say, the unenamelled clay after the first baking, on which are applied afterward the colors for high-fire. In this painting it is better to varnish the surface to be painted with a thin coating of gum-arabic, which is allowed to dry before the application of the colors, the object of which is to prevent the absorption of the colors by the paste. The absorbent quality of the naked or unglazed clay obliges us to employ the colors fearlessly and *flatwise*, as in fresco-painting, which has a strong analogy to this kind of painting. The colors are diluted with gum-arabic or glycerine, and are applied with a large brush made of long hair. Care must be exercised that the strokes be in the right place, as it is almost impossible to correct the errors which may be committed. The painting, when finished and dried, is plunged into liquid enamel, and then baked at 2732° F. (1500 C.)—two bakings. For faïence of colored body covered with white enamel (stanniferous), the clay is generally ochreous or red, and is well dried and baked at a temperature ranging from 2192° to 2372° F. (1200° to 1300° C.). It is then covered with a white opaque, stanniferous enamel, and again baked at the same temperature, after which it has a white appearance, but in breaking it the different colorings of the earth and of the coating of enamel are perfectly distinguishable. The colors for high-fire are employed upon this baked enamel, which is put in the kiln. They then melt and mix with the enamel, and are thus incorporated with it under the action of the fire. The colors will lose their vigor if the fire be not stopped at this moment.

Faïence of colored body covered with raw, white, stanniferous enamel (email cru), known as majolica, can be considered as the type of the 'high-fire faïence.' The clay is baked as above, and covered with a coating of white, stanniferous, liquid enamel, which is not baked. This enamel has the appearance of flour diluted with water, and when applied to the ware and dried, resembles flour-dust. The colors employed are the same as those used above upon the baked enamel. In order to transfer a drawing it is necessary to use a stencil, as the enamel is too friable to admit the employment of a pencil or crayon. The powdered colors are then mixed with gum-arabic and a small quantity of water, and are applied with brushes made of long hair and large enough to hold a sufficient quantity of water and color. The brush, thus charged, is applied to the enamel, the effect of which is the same as if the painting were done upon blotting paper. The water encircles and spreads around the place touched by the brush, and evaporates. This operation requires long practice in order to acquire sufficient skill to make good work. Before one tint can be laid upon another, it is necessary to wait until the first has become perfectly dry and the water has evaporated."